

THE CHEMIST

MAY 1952



VOLUME XXIX No. 5



—A. F. Szio

DR. FRED J. EMMERICH

AIC Gold Medal Recipient for 1952

(Details of the award will appear in the
June issue of *THE CHEMIST*.)

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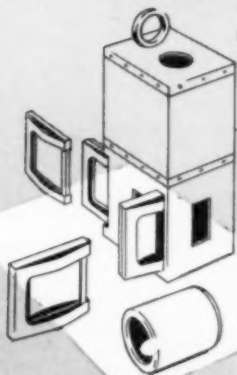


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THE ANNUAL MEETING

At the Annual Meeting of The American Institute of Chemists, this year on May 7th and 8th, reports of officers, chapters and committees for the fiscal year (which ends April 30th) are presented to the membership; a program of papers on professional subjects is offered, and the new officers and councilors are announced. The AIC Gold Medal is presented "for noteworthy and outstanding service to the science of chemistry or the profession of chemist in America." The 1952 recipient is Dr. Fred J. Emmerich, president of Allied Chemical & Dye Corporation. (See Annual Meeting Program, April, THE CHEMIST.) The June issue of THE CHEMIST will carry the proceedings of this 1952 Annual Meeting. The reports of the President and Secretary for the fiscal year appear in this issue of THE CHEMIST.

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EDITORIALS

The New President

Retiring President Laurence H. Flett

THE fiscal year of the INSTITUTE closed on April 30th, and at the time of the Annual Meeting early in May the new President, Dr. Lincoln T. Work, takes over. The INSTITUTE is fortunate to have such a well-known, well-liked, and distinguished chemist for its president for the next two years. Dr. Work has been exceedingly active in chemical organizations and has proven himself to be a skilled leader.

It must be remembered that the progress made by the INSTITUTE cannot be made by the president alone. All of the members of the INSTITUTE take an active part in promoting the understanding of the chemist and the chemical profession. As a group, we are heard in many places by many ears.

The president does need the general cooperation of the members in the actual operation of the INSTITUTE, particularly in the matter of membership. The membership cannot be maintained by the president alone. The INSTITUTE should have among its members all those chemists who are qualified to exercise an influence on the profession. If they are to be brought into the INSTITUTE, it must be through the efforts of the members. A member can double his contributions to the profession by bringing a new active member into the INSTITUTE.

The members by their cooperation can show their appreciation of the fine leadership which they will have under Dr. Lincoln T. Work.

We Are the Producers of Change

Dr. Henry B. Hass, F.A.I.C.

*Director of Research, Central Research Laboratory,
General Aniline & Film Corp., Easton, Pa.*

IN the prologue to "I Was the Witness", Whittaker Chambers expresses the thought that the mass appeal of Communism derives from Marx's statement "Philosophers have explained the world; it necessary to change the world."

Why should we let the Commu-

nists appropriate this truism? Of course, it is necessary to change the world! The question is: In what direction? And by what methods?

If, as Chambers seems to imply, our defense against Communism is to resist change, we are whipped before we start. Change is a law of life and

one of the very few complete certainties.

Is it really a new thing in the world to have large masses enslaved by a few for the benefit of the rulers? Is tyranny new? Did the Communists invent exile and mass murder? Were not these old when history dawned?

What is new in the world is the possibility of the elimination of starvation. It has come about through the work of patient, imaginative men and women working in freedom in many laboratories, combined with the efforts of the technologists who applied their discoveries.

It is new that whole wide spectra of infections can be eliminated from a patient without damaging him. It is new that fibers can be made synthetically with properties superior to those of wool and cotton. It is new that ideas can travel around the world in a fraction of a second; that important and interesting people can enter your living room through television though they are on the opposite side of the globe.

Science and technology are the real revolutionaries, the true innovators. They have freed man's mind from the curse of ancient superstitions while they have increased the years of his life and the well-being of his body.

Shall we fight Communism by wishing for the years gone by? How utterly hopeless!

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New Plant: Being constructed by Corning Glass Works in Harrodsburg, Kentucky, to meet the increasing demands of the armed forces for optical glass for military purposes. The plant, to contain 100,000 square feet of floor space, will employ about two-hundred and fifty persons. Harry S. Sterling has been appointed manager.

The Philosophy of a Government Chemist

Dr. G. M. Kline, F.A.I.C.

National Bureau of Standards, Washington, D.C.

(Acceptance address when the first annual Honor Award of the AIC Washington D.C. Chapter was presented to him, April 22, 1952.)

I AM humbly grateful for the recognition that has been accorded to me and through me to the National Bureau of Standards and my colleagues there. However, in a larger sense, each one of you as stockholders in this great Government of the United States has a rightful share in the award that has been made to one of its employees. It is the opportunity to voice this broad concept of the position of the Government employee in our national economic body that I especially welcome on this occasion. The American Institute of Chemists provides a particularly fitting forum for such a discussion in view of its concentration on the solution of the human problems encountered by its members in their daily work and on the establishment of high standards of professional conduct and practices.

What is the intangible factor in Government work that has led many individuals to make it their career in spite of tempting industrial offers of salaries double and triple that available to them in the Federal service?

Employment security is often cited by the uninitiated as the prime fac-

tor, but let me tell you from experience this is a myth. The Congress decides annually how much money for paying salaries and how many employees, more or less, are to be authorized for the next fiscal year. Sometimes it is less rather than more. I well remember receiving on July 1, 1933, after seven years of Government service, a notice which read:

"The Department—has furloughed you—for the period July 16, 1933, to June 30, 1934."

Freedom from the constant pressure of maintaining production and sales in order to survive is another factor sometimes mentioned as characteristic of Government work. Again, in a properly managed Government agency individual productivity is carefully supervised and attained; otherwise, the Congressional appropriations subcommittees make critical comparisons, ask embarrassing questions, and make pointed, recommendations and painful deletions. As for sales efforts, it took some fast stepping and talking to find a unit in the Navy Department with a plastics problem and money avail-

able to sponsor work to find the answer in order for this chemist to get his name back on the National Bureau of Standards' payroll on August 1, 1933. It may surprise many of you to hear that of the \$47,000,000 budget of the Bureau this year, less than one-fourth is by direct Congressional appropriation; the balance comes from the Defense and civilian departments of the Government which each year must be satisfied that the Bureau's staff and facilities can give them prompt and efficient research and testing services. In turn, these agencies must sell their budgets annually to the nation's elected Board of Directors.

A recounting of the following incident which happened a short time ago will serve to emphasize what I consider to be a most significant factor in Government service. A man who had operated his own small business for some forty years but had suddenly lost it, came to my office to discuss employment possibilities. He said, "I hardly know where to begin. I have never worked for anyone else. I have always worked for myself."

Those of you who have never been a Government employee may think it paradoxical that my immediate reaction was one of sympathetic understanding. After twenty-five years in Federal Government service I have a feeling that I am self-employed, that is, that I am a part-owner of the firm for which I am working and

vitaly interested in its honor, its progress, and its future.

But I have another satisfaction that my non-government friend did not have; namely, that while working for myself in the above sense, I have at the same time been working to advance the "life, liberty, and pursuit of happiness" of the other millions of members of the same firm, described so aptly by one of our great leaders, as the "Government of the people, by the people, and for the people."

Now obviously we can not all be in the position at one and the same time of deriving this inner satisfaction that comes from working directly for our Government. This would be contrary to our historic economic structure based on free enterprise, so carefully protected by our forefathers in drawing up our original charter. Some must be prime contractors and many more must be subcontractors to the party of the first part, contributing indirectly to the development of its resources and its prestige. This makes the selection process to determine who shall have the opportunity and privilege of becoming a civilian Government employee of great importance to the citizens of this country.

There are three processes today by which this may be achieved: (1) Election to a public office by one's fellow citizens, (2) selection on a merit basis through established Civil

THE PHILOSOPHY OF A GOVERNMENT CHEMIST

Service procedures, and (3) political appointment. There is, of course, an irreducible minimum of such latter appointments necessary to have responsible party administration of the Government by the elected representatives of the people. However, there is a continuing trend to place all other non-elective Government positions in the selective Civil Service system. The extension of the merit system to the postmasterships and the collectors of international revenue has added these Government positions to the larger group already filled by employees who can operate without fear or favor to "promote the general welfare and secure the blessings of liberty for ourselves and our posterity."

A Public Trust

I believe that I am echoing the sentiments of the bulk of the rank and file of Government employees when I state that we recognize that this privilege of Government service is accompanied by an accountability for personal loyalty and honesty in the conduct of our Government's business. It is difficult to understand why some object to bearing witness repeatedly, under oaths or otherwise to such loyalty, in spite of the obvious futility of tracking down traitors by these mass tactics. As children we daily pledged our allegiance without any thought that a stigma of suspicion was attached to this demonstration of our patriotism. Again, the

reluctance or refusal of any Government employee or official to disclose to properly authorized persons all details of his public and private income during his period of Government service seems to many of us to constitute a complete failure to grasp the full significance of the well-known phrase, "A public office is a public trust."

The misguided individuals who attempt to avoid such accountability by pleading infringement of constitutional rights unfortunately only serve to detract attention from the encroachment of human rights involved in some aspects of Government loyalty hearings. Even in criminal prosecutions, the sixth amendment of the Constitution of the United States guarantees the accused the right to be informed of the nature and cause of the accusation and to be confronted with the witnesses against him. A man's honor is his most precious possession and in my opinion, the framers of our Constitution and the Bill of Rights intended every citizen to have the opportunity to defend it openly against those who would steal it from him. As I have emphasized previously, a Government employee should be held accountable for his personal loyalty, but this accountability should not be conducted on the basis of cursory and irresponsible accusations. The very high percentage of clearances in such cases would seem to indicate that a more

thorough review and sifting of the charges should be made by the Boards before subjecting the employees to these degrading ordeals. This procedure would also protect many innocent victims of idle gossip from the permanent blot of these "clearances" in their records. From observations of the effects of these hearings on Government employees who have experienced such treatment, I believe that this infringement of human rights is the greatest single detracting factor today to the full measure of pride which should characterize Government service. It has also been one of the greatest impediments in the way of attracting many competent outstanding citizens into the Government service.

The Growth of the Plastics Industry

It was my good fortune shortly after joining the staff of the National Bureau of Standards in 1929 to be assigned to cover the apparently up and coming segment of the chemical industry concerned with plastics. It consisted in those days of Celluloid and Bakelite with two or three pretty but costly newcomers called cellulose acetate, urea-formaldehyde, and vinyl. To grow up with and participate in a small way in the development and application of that dynamic industry's veritable wonderland of products has been a privileged experience.

The history of its phenomenal expansion is well known to most of you. In the twenty-five year period from 1925 to 1950, the growth has been 15 per cent per year compared to a ten per cent average for the whole chemical industry. This has meant an increase in production from 23,000 short tons in 1925 to 1,450,000 tons in 1950. An alumnus of the National Bureau of Standards, Dr. Raymond Ewell, has projected these figures into the next twenty-five years.¹ His charts indicate that the production of plastics can be expected to reach five million tons in 1962 and 12½ million tons in 1975. The two very new fields of synthetic resin fibers and synthetic soil conditioners can be expected to account for large percentages of the peacetime markets for the increased output of these materials. The word "plastics" has become a symbol of the better things and living to come.

National Documents Preserved

When I went to work at the National Bureau of Standards in 1929, I took the following oath of office: "I will support and defend the Constitution of the United States against all enemies, foreign and domestic." A very personal and literal touch was added to this sacred trust for my colleagues and me through the opportunity which we had recently of helping to preserve our documentary

¹"Past and Future Growth of the Chemical Industry," By R. H. Ewell, Chem. & Eng. News 29, 5228 (Dec. 10, 1951).

heritage. By selling in helium-filled glass enclosures the parchments on which the Declaration of Independence and the Constitution of the United States are inscribed and by filtering out the ultraviolet from the light that illuminates the Shrine in which they are on display in the Library of Congress, the desired protection has been provided for centuries for these documents against the harmful effects of atmospheric corrosive gases, insect and bacterial attack, and photochemical decomposition. At the same time the new methods of mounting the documents and lighting the Shrine have served to give the American public a better view of these historic documents than ever before.

A ceremony was held at the Shrine on Constitution Day, September 17,

1951, to inform the people of the United States that, in the words of the Librarian of Congress, "Every resource of science and technology has been applied in the effort to make these precious documents as permanently secure as the principles they proclaim." The President of the United States, the Chief Justice, and the Chairman of the Joint Committee on the Library participated in that ceremony in which the first page of the Constitution was placed in its glass enclosure. As we followed them from the great hall of the Library of Congress, carrying the transparent case which contained the precious parchment, we knew that the eyes of the audience were not upon us, but rather more fitly upon the words which our forefathers had emblazoned at the top of that original charter: WE, THE PEOPLE.

Tribute to Dr. Kline

Dr. Milton Harris, F.A.I.C.

Harris Research Laboratories, 1246 Taylor St., N.W., Washington 11, D.C.
(Presented on the occasion of the award of the first Honor Scroll of the Washington Chapter to Dr. Gordon M. Kline, April 22nd.)

GORDON M. Kline was born in Trenton, New Jersey. He received the B.A. degree from Colgate University in 1925, the M.Sc. from George Washington University, and the doctorate from the University of Maryland in 1934. He was research chemist with the New York State Department of Health during 1926

and 1927, and the following year went to Picatinny Arsenal. In 1929, he joined the staff of the National Bureau of Standards, and pioneered in researches on organic plastics.

In 1931, I also joined the staff of the Bureau as a research associate for a textile association and it was my good fortune to quickly make friends

with Gordon. My first assignment was concerned with fundamental studies on wool, an outstanding wonderful fiber even in this day and age of miracle fibers, and I remember my annoyance with Kline who was seeking a substitute for shellac for stiffening of the old-type Army hat. He really made a mess of the magnificent properties of the wool fiber. However, I must forgive him because this work of his stimulated his interest in the infant field of high polymers and he in turn stimulated me along similar lines. As a matter of fact, he was the first to bring to my attention the early work of Wallace Carrothers, father of Nylon, and a true pioneer in what is rapidly becoming a tremendous industry, the synthetic fiber industry.

Soon after this early work, Kline became chief of the Organic Plastics Section, a section of the Bureau, which under his leadership grew to be an extremely important and famous one. It is little wonder that he was recently made chief of the entire Division of Organic and Fibrous Materials.

A man's influence on science is generally measured by his contributions in his chosen field. A less tangible measure of his influence is the effect of his efforts in allied fields of science on his fellow workers and on the organization sponsoring his work. From all of these points of view, Dr. Kline's work is of out-

standing importance. He might have elected to spend his life making precise studies of the nature of polymerization reactions. Instead he chose to advance the whole field of plastics chemistry and especially its application to many important industrial problems. As a result, he is now internationally known for his researches in such fields as organic plastics, polymerization of olefins, dopes for aircrafts, and adhesives. Nearly 200 publications emphasize the tremendous activity of Dr. Kline and his colleagues in the field of plastics. And when one considers that the entire field is still in its infancy, only then is it realized that these great efforts have been of a truly pioneering nature.

A quick survey of these publications reveals the tremendous versatility, breadth of interest, and imagination of the man we honor tonight. In addition to basic studies on the chemistry and physics of plastics, his group has delved into such diverse fields as optics, microbiology, laminates, aircraft and balloon constructions, dental materials, packaging, paper, motion picture films, adhesives, and many others. An interesting example is his recent study on the preservation of the originals of the Declaration of Independence and Constitution of the United States in special, helium-filled enclosures.

As further evidence of his leadership, Dr. Kline has been technical editor of *Modern Plastics* and edi-

TRIBUTE TO DR. KLINE

torial director of *Modern Plastics Encyclopedia* since 1936. He was one of the first American scientists to investigate the German plastics and chemical industries. These investigations were initiated well before the close of the war in Europe, and formed the basis for a series of papers on the advances of the German plastics industry during and since World War II.

Finally he is or has been the chairman or a member of committees too numerous to mention. It has been my privilege to work with him on a number of these activities and I can assure you that he is an unusually able worker and a stimulating leader.

It is a relatively simple matter in the field of business, sports and in many professions, to choose the outstanding performers. In the field of science the problem becomes very much more difficult since it is not always easy immediately to evaluate

a man's contribution to science in particular and the world in general. All too frequently the full impact of a scientist's work is not felt for many years or generations. Fortunately such difficulties were not encountered in the present situation and it was a relatively easy task to choose Gordon Kline as a most worthy recipient of the Scroll of the Washington Chapter of THE AMERICAN INSTITUTE OF CHEMISTS.

This is indeed a happy occasion for us and I am sure a thrilling one for our honored guest. He would be less than human were it not. It is often said that nothing is dearer to the heart of a scientist than the respect and admiration of his fellow workers. I want to assure you Gordon Kline, that this opportunity for us to express our admiration and esteem for you and your work is equally thrilling and it is with this spirit that your colleagues honor you.

Honor Scroll Presentation to Dr. Gordon M. Kline

President Lawrence H. Flett

IT IS A particular pleasure to see the Washington Chapter set up an honor roll, because in this area there is a much needed opportunity to make the government chemist better known to the people of the country. Sensational headlines in the newspapers are bound to give people an entirely wrong idea concerning all

government employees. Because there has been so much in the papers, there is a real need for a clear-cut presentation of the role of the government chemist so that his great contributions to the welfare of the nation may be known.

Government laboratories have done and are doing wonderful work, and



Dr. Kline and President Flett

—C. E. N

often under great difficulties. At times when all costs increase, it would be expected that their budget would increase still further to broaden their valuable contributions. This has not been so. With a proper understanding of the function and usefulness of these laboratories, such increases would be far easier to obtain.

The service, loyalty, and the accomplishments of the chemists who work for the government and the sacrifices they make to be in the service and to work for the people of the country can never become well-known unless they are publicized. The government chemists cannot do it for themselves. It must be done by others, and in this case by the members of the Institute who are taking the initiative.

It is to be hoped that the Washington Chapter will find it possible to add names to the list of recipients which are as distinguished as that of Gordon M. Kline. It is an undeserved privilege to be permitted to present the First Honor Scroll of the Washington Chapter and to present it to such an eminent chemist working in the service of the United States of America.

Dr. Kline, your citation reads as follows:

*In recognition of
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His advancement of Plastics Or-
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His Wholesome Attitude of Confi-
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Dr. Sidney Sussman, F.A.I.C.

Water Service Laboratories, Inc., New York 27, N.Y.

(Presented at the recent Panel Discussion, "What Industry Expects of You," held by the New York AIC Chapter.)

THE NAME 'Product Development' is used to describe entirely different activities in many companies. It may cover operations varying from the experimental work necessary to bring a new product from the laboratory to full plant production on the one hand, to the activity better described as commercial chemical development or market development on the other. Dr. H. B. Hass has told me that the term 'development' is used for three entirely different activities within his company alone, and this is by no means unique.

Despite this divergence in definition, the activities carried out under this general title have several common denominators with regard to the qualities they particularly require in chemical personnel. Naturally, technical competence, intellectual honesty, and a willingness—even a desire—to work are high on the list of qualifications that industry expects you to bring to a job in product development, as well as in any other chemical activity.

Possibly the major difference be-

tween research and product development is that the latter field requires a greatly increased cooperation with persons trained in fields other than chemistry. Depending upon the job description in his own company, the product development chemist will work closely with research chemists, chemical engineers, plant operators, technical salesmen, patent attorneys, cost accountants, various craftsmen, and even customer's representatives of varied technical and non-technical backgrounds. In a pharmaceutical company, this list may include bacteriologists, microbiologists, and physicians. In other companies, it may include physicists, textile technologists, or metallurgists.

The nature of your work will make it highly desirable that you have or rapidly acquire some knowledge of the specialties of those men with whom you work. Thus, in helping to move a product along from the laboratory to the plant, you will require some background in chemical engineering, materials of construction, quality control, and cost calculations. Or, if you are attempting

to develop markets for a new product, a more than casual knowledge is necessary of the various industries and applications in which it might find use.

With no means of predicting your industrial destination, the college or university cannot prepare you in this respect. This is entirely a job for self-education, which you may expect to start when you enter industry and to continue as long as you live.

Since you will be dealing with fellow-workers of different backgrounds, the art of communication must be perfected as rapidly as possible. It is very essential that what you say or write be brief, complete, and so clear that the recipient of your message will understand it and will understand it to mean exactly what it meant to you.

I can, perhaps, illustrate my point by the true, although non-technical, anecdote of a young man on his way to do the family marketing who was hailed by a neighbor and asked to bring back some "Spuds." Now, the young man had been brought up in a locality where spud is a nickname for the potato, so, being a non-smoker, he brought back five pounds of potatoes to his neighbor who was anxiously waiting for a package of cigarettes. Both parties clearly understood the word 'spud', but to each it meant something different.

A knowledge of adjacent fields

will help you to keep your oral and written reports clear by supplying the specialized vocabulary of your technical neighbors, but, in addition, you will need practice, practice, practice—and, if at all possible, a good, constructive critic.

Those of you who have written to any extent for a college newspaper are fortunate. You probably have a head start in learning to prepare clear and concise reports since many technical reports are built very much like the classic news story: An introductory paragraph or two summarizing the whole situation, the same information fleshed out with more detail in a longer presentation, and, if required, a further repetition including all of the minute details that may be needed for future work.

Those of you who are blessed early in your industrial career with a fussy supervisor who returns reports again and again for re-writing will, although possibly only in later years, be quite thankful to him. The rest can acquire this very necessary skill by taking every opportunity to write reports until the organization of data and its clear presentation become almost second nature.

Once a product steps out of the research laboratory, it enters in earnest the great world of compromise where almost no job is done as completely as a perfectionist would like to see it done. Therefore, the chemist is constantly called upon to exercise

judgment. Non-chemical factors, such as economics or safety considerations, must be weighted along with technical facts in order to reach a decision. Should this line of work be stopped now with a 'good enough' result or should we proceed for a longer time, and at a greater cost, in the hope of getting a much better result? Which of several equally obscure courses of investigation shall we follow when the time allotted is only sufficient to explore one? How shall we proceed to prepare this product at a saleable price or of what material shall we build that equipment—when insufficient data are available but we must start operations immediately?

Decisions, such as these, are required almost daily in the life of the product development chemist. Their successful resolution requires good judgment. Good judgment is a combination of common sense with experience, and can be developed. Do not be afraid of making mistakes. If you learn from them, they are the seeds from which your good judgment will grow.

There are, of course, many other characteristics that the industrial employer would like to see in his product development chemists. Most of these are common to other chemical fields and have been discussed by others. But a broad knowledge of neighboring technical specialties, the ability to communicate clearly with

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others, and good judgment, together with the fundamental qualities of honesty and sound chemical knowledge plus the ability to use it, will provide the product development chemist with the intellectual tools that industry expects of him for the best performance of his duties.

Change of Name: Windsor Manufacturing Company to Goodyear Tire and Rubber Company of Vermont, Shoe Products Division. Coincidental with the new identification of the Goodyear subsidiary, a \$750,000 building expansion program was announced.

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Returned: Jasper H. Kane, F.A.I.C., and Charles A. Werner, research scientists of Chas. Pfizer & Co., Inc., Brooklyn, N.Y., from a six-weeks tour of the Far East. Mr. Kane reported that the Japanese have already become self-sufficient in the production of penicillin and are rapidly increasing the manufacture of streptomycin. The Indian Government-United Nations penicillin plant is expected to be in large scale production in 1953. The scientists addressed the Indian Science Congress in Calcutta, The Tokyo Antibiotics Research Association, and the Japanese Medical Association.

To Switzerland: Dr. Hugo Zahnd, F.A.I.C., associate professor of chemistry at Brooklyn College, on sabbatical leave, who will do research at the invitation of Professors T. Reichstein and E. Schlitter, at the Chemical Laboratories of the University of Basel.

"Corrosion in Action": The title of a new sound color film now made available by the Corrosion Engineering Section of the International Nickel Company for showing to groups in schools, colleges, industrial plants and technical societies. The film is in three parts, of twenty minutes each, that can be shown singly, by twos or all three at once as may be desired, since each part tells a complete story of an aspect of corrosion. The film employs all the techniques of motion picture photography—including animated drawings, slow motion dissolves and time-lapse photography—to explain the phenomenon of corrosion and methods of combating it. The film is well-planned and expertly executed both from the point of view of motion picture techniques and scientific and industrial aspects of its subject. Applications for bookings of the film should be addressed to Corrosion Engineering Section, International Nickel Company, 67 Wall Street, New York 5, N. Y.

Change of Name: Millmaster Chemical Corporation to Berkshire Chemicals, Inc., located at 420 Lexington Ave., New York 17, N.Y.

Moved: The London offices of Witco Chemical Company, Limited, to Bush House, Aldwych, London, W. C. 2, England, as a result of expansion.

What Industry Expects of You In Production

Peter J. Kornett, F.A.I.C.

Superintendent, Oakite Products, Inc., 22 Thames St., New York, N. Y.

(Presented at the recent panel discussion, "What Industry Expects of You," held by the New York AIC Chapter.)

LET US first consider the various departments which primarily comprise an organization within the chemical industry. They consist of: Management, Administration, Sales, Technical, and Production.

Management concerns itself basically with the formulation of company policies. Administration carries out the dictums issued by the former. Sales, along with advertising, place the products on the market. The technical department conducts the research and process and development work. It also sets up technical information and standards control.

The responsibility of the production department consists of manufacturing products which must comply with standards set by the technical department and costs calculated by the accounting and management groups.

The question now becomes: Where do you, as young chemists, fit into the pattern? As you scan your daily papers you can readily comprehend the increasing pressures brought upon industry by competition in standard products; competition from new products which may cause your

standards to become obsolete overnight; competition in labor, and competition in newer and improved methods of production. Along with the present day tendencies toward further increases in corporate taxes, the foregoing factors are a direct challenge to the success of any business enterprise.

Let us remember that industry and companies are made up of people, those of us who have their assigned jobs and have been working at them for a number of years, and those of you starting out in the chemical industry, wondering just where you are going to fit into the scheme of things.

There are many factors to be considered. In my opinion, the foremost probably would be: What can I contribute to the success of my company and what are my opportunities with the organization? Unfortunately, some young men and women, particularly when they are starting out, place the emphasis on the latter condition. The success of any company depends upon the success of you as individuals.

In most cases, men starting in

production are generally taken from the ranks, from the chemical laboratory, engineering or various phases of the technical departments.

Your first step into production may come in the way of a control chemist. It will probably be your first introduction to the knowledge of how actual production is carried out. You start by going to the various pieces of equipment and obtaining samples of their yield. These may be primary, intermediate or final phases of the product. You now have the opportunity to acquaint yourself in a plant or factory with how a material is made—not on a laboratory or pilot plant basis, but in actual production. Do not underestimate the importance of what may possibly be learned from this seemingly menial task. This is your opportunity to acquaint yourself both with the equipment and the men charged with the responsibility of operating the latter. An understanding of both these factors may to a large extent, determine the future personal advancement and success to which you and all of us aspire.

In observing the workings of the equipment you may find yourself asking the question: Why is it made this way? This may lead to the development of a change in the process, improving either the quality, the operation, or both. A word of caution, though, at this point should be considered: Ponder why the

change of process may not work; gain more knowledge of the problems either from books or fellow workers, and proceed cautiously.

Although you may possess greater knowledge of the technical and theoretical phases of the chemistry involved, here again do not underestimate the man who may be somewhat lacking in formal education, but who represents years of experience on this or similar jobs.

From this point on, you probably will find yourself concerned with costs, quality, labor relations, father confessor, and all sorts of problems which come up in a day's work.

In conclusion, to fit production into its proper place in the pattern of a company, those men engaged in the manufacturing end of the business basically require the qualities and abilities expected of you in any responsible undertaking namely:

1. Loyalty to your company, your superiors and your subordinates; a sense of fairness and an understanding of the problems.
2. A technical and practical knowledge of your job and products.
3. Clear thinking: Judgment to evaluate various problems and the ability to carry out decisions.
4. A temperament and personality to get along with persons of all walks

WHAT INDUSTRY EXPECTS . . .

of life; and understanding of their thinking processes and their problems.

5. Last, but certainly not least, honesty. Enduring success probably depends more upon this one virtue than any of the aforementioned requisites.

Industry Invited: To use the facilities of the core storage library of the U. S. Bureau of Mines near the Fort Snelling Government Reservation, just south of Minneapolis, Minn. More than 37,500 feet of drill cores from mining projects in the four Upper Midwest States have been stored there. For information, write the chief of the Mining Div., Region V, Bureau of Mines, Dept. of the Interior, 2908 Colfax Ave., South, Minneapolis 8, Minn.

Transferred: J. A. Cerbone, A.A.I.C., to the new Chicago office of Blaw-Knox Construction Co., 180 No. Wabash Ave., Chicago 1, Ill., where he is Head Buyer—Midwest Branch of the Chemical Plants Division.

Speaker: Dr. Foster Dee Snell, F.A.I.C., president of Foster D. Snell, Inc., New York 11, N.Y., who spoke at the Annual Meeting of the Association of Food Distributors, February 19th, on "Food and the Law."

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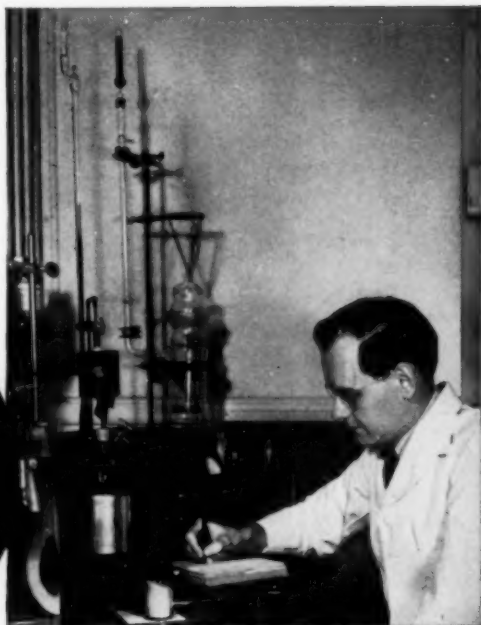
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Visitors: Attending the meetings of the Federation of American Societies for Experimental Biology, in New York, N. Y., April 14th to 18th, included Dr. Emmett B. Carmichael, F.A.I.C., Medical College of Alabama, University of Alabama, Birmingham; Gilbert I. Davis, F.A.I.C., Wyeth Institute of Applied Biochemistry, Philadelphia; Dr. C. A. Johnson, College of Medicine, University of Illinois, Chicago, and Dr. Henry Tauber, University of North Carolina, Chapel Hill.

Moved: Werner Jacobson, F.A.I.C., translator and chemist, to larger quarters at 2800 West Harrison Street, Chicago 12, Illinois.

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1. Neuss, J. D., O'Brien, M. G., and Frediani, H. A., Analytical Chemistry 23, 1332 (1951)

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Careers Ahead!

EIGHT Chapters of THE AMERICAN INSTITUTE OF CHEMISTS have awarded Student Medals this year to senior chemistry students in their areas, "in recognition of leadership, excellence in scholarship, and character." The students who received these awards are:

Chicago Chapter

Phillip Chan
Monmouth College
Harold Carl Choitz
State University of Iowa
Leland E. Cratty
Beloit College
Miss Dana Gillies
Purdue University
Edward Peter Goffinet, Jr.
University of Notre Dame
William Earl Hatton
Indiana University
Dale R. Hoff
University of Illinois
Howard V. Holler
Iowa State College
Ralph Wolfgang Kilb
University of Nebraska
Lester H. Krone, Jr.
Washington University
Louis Paul Lindeman
Illinois Institute of Technology
Paul Caylor McKinney
Wabash College
James W. Richardson
*South Dakota School of Mines
& Technology*

Garry Lee Schott
University of Michigan
Miss Justine I. Simon
Wheaton College
Miss Charlotte Jane Sloan
Wayne University
Stuart Butler Smith
University of Wisconsin
George Snurpus
Loyola University
John S. Tadanier
Northwestern University
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Columbia University
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ington Square College*

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CAREERS AHEAD!

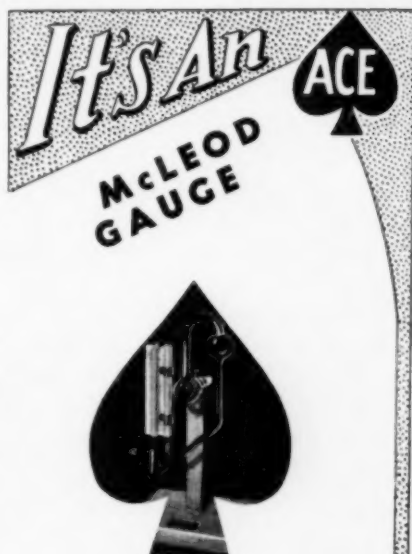
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The Georgetown University
Paul Louis Goodfriend
The University of Virginia
Don Stuttler Harmer
The George Washington University
George Wady Imirie, Jr.
The American University

THE AMERICAN INSTITUTE OF CHEMISTS wishes all of these young men and women success in their chosen careers. When the inevitable problems and questions confront them, which can be enlightened by experience, the officers and members of the AIC and its Chapters are always ready to make available to these young people the benefit of their counsel and observations.

Graduate Student: Howard C. Leifheit, M.A.I.C., who is working for the degree of M.S. in clinical chemistry at Tufts College of Medicine, Boston, Mass.

Research Assistant: Arthur A. Anderson, A.A.I.C., in the chemistry and chemical engineering department at Armour Research Foundation of Illinois Institute of Technology. He was selected as a student medalist by the Chicago Chapter of THE AMERICAN INSTITUTE OF CHEMISTS, in 1950, from Northwestern University. He is a member of Phi Beta Kappa and Phi Eta Sigma.



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Tuskegee Institute Dedicates New Carver Research Laboratory

Dr. Clarence T. Mason, F.A.I.C.

*Director of Research, George Washington Carver Foundation
Tuskegee Institute, Alabama*

(The report of the AIC delegate to the dedication.)

AT TUSKEGEE Institute, February 12th, dedicatory exercises were held for the new \$250,000 research laboratories of the George Washington Carver Foundation. The exercises, held in the Institute Chapel, featured an address by Dr. Henry Gilman, F.A.I.C., who was introduced by Dr. Roy C. Newton, F.A.I.C.

In his talk entitled, "Fantasy in Prophecy," Dr. Gilman emphasized that the new laboratories represented the fulfillment of one of the dreams of Carver, and he spoke philosophically on the future of research:

"From his very beginnings in research, the embryonic scientist . . . finds himself making comparisons. He is forever trying to integrate and correlate observations and phenomena of all kinds. This is something of sheer instinct to a scientist, but it is not peculiar to scientists, because we find this process working in all disciplines. One reason for this constant examination of phenomena in order to make correlations is to draw whatever reasonable generalizations can be drawn from an otherwise confusing variety of facts . . .

"The scientist in searching out generalizations comes to look for them very purposefully . . . As research grows there is increasing emphasis placed in formulating more useful generalizations. These generalizations make it possible for the scientist to explain what has happened; to interpret what is happening; and to predict what will happen . . . With the formulation of more sound mathematical generalizations, the scientist comes before long to find himself in a more favorable position for predicting the outcome of reactions. . . . It becomes clear that the scientist theoretically might reach the stage when it becomes possible to predict with exactness any conceivable reaction. When this hypothetical stage has been reached, then there would no longer be any need for research as we now know it . . . In short, science as far as research is concerned would then be reduced to a sort of bookkeeping . . . Therefore, in a sense, scientists are working eagerly and intensely to obtain generalizations from research which when completed and made highly

exact will do away with research . . . This type of professional suicide . . . would have some of the elements of Greek tragedy because it would be associated with the natural joys and beauties of research!

"This is an interesting picture, but if true it has one interpretation which should allay any present concern. I refer to the time factor. It is altogether possible that this ultimate aim of science, to obtain sound generalizations, to make exact predictions, will only be reached in the infinite future. There would then be for all of us and for the many generations to follow, the joy of working instinctively for these sound generalizations and with the knowledge that, like the proverbial will-o'-the-wisp, the end suggested would really be unobtainable . . .

"George Washington Carver was an artist and dreamer and had his flights of fantasy. But he was also a doer who learned how to put his dreams to work . . . One of the richest legacies left by Carver is the example of overcoming almost unsurmountable obstacles. Tuskegee Institute will long be remembered for its resplendent pioneering successes."

Presided over by Dr. F. D. Patterson, president of Tuskegee, the exercises included speeches by Thomas D. Russell, president, the Russell Manufacturing Company and chairman of the Board of Trustees, the Carver Foundation, and Dr. R. W.

Brown, director of the Foundation. Following the exercises, the laboratories were inspected by the many friends, visitors, and representatives from various institutions and chemical organizations.

The new laboratory building has offices for research administration as well as twenty-one laboratory modules, ten by twenty-two feet, a refrigerated room and a room for ice storage, library and seminar room, stocks and store rooms, dark room, an *avena* room, and an incubator room. The research is directed by members of the Carver Foundation staff who are also members of the teaching faculty of the Institute. Projects are financed largely by contracts with outside industrial firms as well as various government agencies.

Funds for the erection of the building were donated by various philanthropic agencies, private individuals, and through a loan from Tuskegee Institute.

In addition to the Dedicatory Address, Dr. Gilman lead a seminar on "Organometallic Compounds," which was well attended by chemists of the area.

New Insulin Supply: To be furnished by Armour and Company's new plant in Buenos Aires, Argentina. The plant is now being equipped with machinery, while a staff nucleus is being recruited in Chicago to train the Argentine personnel who will eventually operate the establishment.

Rutgers Offers New Evening Program

Employees of New Jersey's vast chemical industry may now earn degrees in chemistry in evening study in University College of Rutgers University. The program will enable employed men and women to secure the Bachelor of Arts degree in chemistry as part-time students, beginning in September 1952.

The new program follows the general Rutgers pattern and offers a curriculum which permits concentration in chemistry and the related sciences, and at the same time, provides the student with courses in the social sciences and the humanities.

An extensive series of chemistry courses has been offered by University College, the evening division of Rutgers, since 1934. The school plans to continue its Certificate Program in chemistry and its individual advanced courses in this field. The new program, however, will expand these offerings and enable the student to earn, during evening study, the degree in chemistry.

During the Freshman part of the program, courses will include General Chemistry, English Composition, College Algebra, Analytic Geometry, German or another foreign language, and a social science.

In the Sophomore Group, courses offered will include Qualitative Analysis, Quantitative Analysis, Calculus I and II, General Physics, and a science or language.

In the Junior Group, there is an English course in Language and Literature, Organic Chemistry, Physical Chemistry, Physical Chemistry Laboratory, and a choice of a subject from art, literature, music or philosophy.

In the final or Senior Group, the student has to take at least two of the following chemistry courses, Organic Qualitative Analysis, Advanced Organic Chemistry, Selected Topics in Organic Chemistry, Thermodynamics, Kinetics, and Industrial Chemistry. In addition, electives may be chosen from the humanities and social sciences.

Since the facilities of the School of Chemistry will be utilized for the advanced chemistry courses, students will have to complete the major in New Brunswick. However, it will be possible for residents of the Newark, Paterson, and Camden areas to complete a large amount of their liberal arts work in the University College division nearest their homes.

It is expected that a minimum of eight years of evening study will be required to complete the program. Appropriate courses earned previously at University College may be applied toward the degree.

Information regarding registration, tuition, and course content will be supplied by the Registrar, University College, 77 Hamilton Street, New Brunswick, N. J.

Chemists Improve the Nutritive Value of Staple Foods

Dr. Frank L. Gunderson

*Biochemist, Research and Development Vice President, Pillsbury
Mills, Inc., Minneapolis, Minn.*

(Based on a Report to the Manufacturing Chemists Association, New York, N.Y. Jan. 15, 1952. Published in unabridged form in the February, 1952, *Food, Drug and Cosmetic Law Journal*. Opinions expressed are the personal views of the author.)

THE nutritional well-being of millions of persons of all ages has been greatly improved by intentional chemical additives. At least six specific kinds of formerly serious malnutrition have been widely and substantially reduced through deliberate addition of pure chemicals to food. It is well that we keep these facts clearly in mind. Alarmist writers, lecturers, and even some legislators are presently and indiscriminately insinuating that chemicals in foods are bad procedure. In this case, as in so many others, generalization is a dangerous error. Oxygen to breathe, water to drink, and sodium chloride to eat are striking examples of "chemicals" without which we would all die quickly.

Food fortification is not new. While nutritional fortification of certain foods has received new and vigorous waves of publicity in the last decade, the practice antedates this century. The principle had its inception in France nearly one-hundred and twenty years ago.

Iodized Salt First Food Fortification

The French chemist M. Boussingault in 1833¹ critically observed the geographic distribution of endemic goiter in children in the mountainous, in contrast with the coastal, regions of South America. Out of his recommendations evolved the practice of adding potassium iodide to table salt. Pathetic cretinism and the unsightly enlarged necks of children (girls are particularly susceptible) are the obvious external signs of endemic goiter due simply to shortage of iodine in food. But the internal upsetting of the growth mechanism metabolic rate, and other physiological processes is even worse than the exterior unattractiveness of such victims.

Iodization of table salt has been practiced over a wide range of levels from 400 down to 5 parts of KI per million added to the NaCl in many European and Western Hemisphere countries. Doctors Marine and Kimball of Ohio first pointed out in

1917² the high incidence of endemic goiter in the regions around our Great Lakes and in the Pacific Northwest and recommended a relatively simple procedure to eliminate dietary shortage of iodine and its resultant endemic goiter. With encouragement of competent medical and public health goiter study groups in Ohio and Michigan, table salt manufacturers in 1924 started voluntarily to iodize distinctively labeled table salt. Re-surveys have repeatedly shown that the incidence of endemic goiter in the school children in goiterous areas is reduced typically from more than 50 per cent to less than 25 per cent among those children whose families use iodized table salt. Too many families with children fail to use iodized salt. A bill in Congress two years ago calling for all table salt to be iodized was rejected in committee.

Canada and England recently made it compulsory, and I regard the level designated by the English, namely 15-30 p.p.m., as the soundest yet. Since we are not such heavy consumers of seafoods as the English, we likely may need a little more iodine than do the English from table salt. Nevertheless, and in view of the recently achieved fine stabilization of KI in NaCl, I think we might well review the quantitative aspect with a view to lowering it in the U.S.A. from our present 100 to say 50 p.p.m. Most important of all, however, is

the necessity of repeatedly emphasizing to mothers and fathers of young children that iodized salt, rather than plain salt, will best assure their children freedom from goiter.

Vitamin A Fortification of Margarine

Denmark shipped practically all of its butter to England during World War I. Danish children ate plain margarine—and suffered severe vitamin A deficiencies with attendant impaired growth, excessive respiratory infections and the eye-destroying Xerophthalmia. The Danish Government took quick steps to add vitamin A (from fish liver oils) to its margarine. England followed the practice and in the U.S.A. more than 98 per cent of all margarine is now fortified. The usual amount is 15,000 units of vitamin A/lb. margarine which is typical of the vitamin A potency of butter made from milk of pasture-fed cows. Vitamin A synthesized in chemical factories is interchangeable* with “natural” vitamin A for this purpose, as for other prophylactic or therapeutic purposes. The more economical source deserves preference. This nutritional improvement program is sailing along smoothly.

Vitamin D to Foods for Rickets Prevention

Children require vitamin D for proper deposition of calcium and

*The present legal standard provides only for fish liver oil or a concentrate made therefrom as the source of vitamin A for this purpose.

phosphorus to form strong bones. Without vitamin D the bowed legs or knock-knees, the "chicken-breasted" malformed chests and abnormally short stature were frequent consequences. Cod liver oil was the remedy of prior generations. Starting 1930, vitamin D was imparted to milk by ultra-violet irradiation. Now activated concentrates of sterols are added to vitamin D milk—both evaporated and bottled milks. Since children need about 400 units per day, that is the amount which customarily is added to a quart of milk or to the evaporated equivalent to a quart. Dr. W. E. Kraus of Ohio State University, an eminent authority on this subject, is quoted as having said recently of the trend:

"One large milk company, operating over a wide geographical area, reports that in 1941 vitamin D milk sales represented 12.7 per cent of the total fluid milk sales, and that in 1949 this figure had increased to 57.3 per cent."

Bones of children, and of the young men and women who were children 15 years ago, are better shaped and stronger today. In a private report from the American Medical Association I am advised:

"It is a little short of miraculous to recall that in the mid-20's florid rickets was commonplace; in fact any sizeable children's hospital had a ward full and could demonstrate, on a moment's notice, a great variety of rachitic lesions. Now it is difficult at most medical schools to find cases to demonstrate to the medical students."

Flour and Bread Enrichment

Starting in 1941 the flour milling and bread baking industries began putting back in short extraction or highly refined white flour and in white bread several vital nutrients incidentally removed in the milling of wheat. The ideology of "restoring" important nutritive values to flour and bread led to the enrichment program. Also flour and bread are suitable vehicles for upgrading nutritive intake of a high percentage of the population. The economical availability of nutrient concentrates and their freedom from bad color and taste aided the program.

The "B - Vitamins", Thiamine, Riboflavin, and Niacin, are all necessities if people are to be healthy and avoid beri-beri, ariboflavinosis and pellagra. Adequate dietary iron is imperative to avoid anemia. All four of these nutrients are added to enriched white flour and bread in amounts carefully prescribed in official regulations by the federal Food and Drug Administration. The quantities added bring the content of these four nutrients up to or slightly above the average in the unprocessed whole grain. An estimated 60 to 70 per cent of the white flour and bakery white bread is thus enriched. Enrichment is voluntary in 22 states; it is compulsory by local law in 26 states and 3 territories; 5 southeastern states require similar enrichment of corn meal and grits. The

U.S. Dept. of Agriculture estimates³ that 10 to 25 per cent of the total national per capita supplies of thiamine, niacin, riboflavin and iron are derived from the enrichment of cereal foods. P. C. Jeans, M.D. *et al* reporting a dietary study of 404 pregnant young women of central Iowa, state in part:⁴

" . . . Cereals provide the major part of the daily thiamine intake for each group—and the mean intake for each group was ample . . . In this state practically all cereal foods and flours are enriched; therefore the intakes of thiamine, iron and riboflavin are all far higher than would be possible with unenriched white flour products. Bread alone supplied from 15 to 31 per cent of the thiamine; from 40 to 50 per cent was provided by cereal foods. White flour products predominated heavily in the diets, therefore, had the bread and flour been unenriched, the day's thiamine intake would have been cut by 30 to 40 per cent and many women would have been close to actual deficiency, if not clinically deficient . . . cereals provided 30 to 41 per cent . . . of the day's iron intake. Had the cereals been unenriched, few women would have ingested as much as 10 mg of iron daily. These findings demonstrate clearly the worth of the present bread and flour enrichment program, for the dietary habits of the (404) women studied here are probably common in many, if not all, rural and semi-rural areas of the northern section of the country."

Fluorine for Better Teeth

Dental caries, or decay of teeth, continues at an appallingly high rate for the nation. A deficit of fluorine in food and especially in drinking water is believed largely responsible. Fluorine is a normal com-

ponent of strong sound dental enamel. One part fluorine per million parts drinking water seems ideal. In areas where drinking water is below $\frac{1}{2}$ p.p.m. caries incidence is high; around 1 p.p.m. caries is at its lowest; and with excessive fluorine such as 3 or more p.p.m. discolored or "mottled" enamel occurs.

During the last ten years municipalities now numbering over one-hundred and including some cities in the one-half million population brackets have adopted the fluorination of drinking water. Children from 0 to 12 years of age are the principal benefactors although there is some opinion that adults also benefit. Caries is reduced as much 60 per cent. The recent report of the National Research Council's Ad Hoc Committee on Fluoridation of Water Supplies⁵ confirms the prior views of several professional and scientific associations.

The " . . . Committee recommends that any community which includes a child population of sufficient size(and which obtains its water supply from sources which are free from or extremely low in fluorides, should consider the practicability and economic feasibility of adjusting the concentration to optimal levels. This adjustment should be in accord with climatic factors and a constant chemical control should be maintained. With proper safeguards, this procedure appears to be harmless. However, it should be conducted under expert dental and engineering supervision by the state board of health. It should not be undertaken unless this can be provided. How much reduction in the prevalence of caries will actually be realized in the particular community

will vary according to local conditions. The procedure will supplement but not supplant other dental health measures. About one half of the population of this country is living in small villages and rural areas and will not benefit by fluoridation of public water supplies. Other provisions for preventing dental caries in this fraction of the population should be continued and developed."

Conclusions

These are the five great chapters in fortification of staple foods with chemicals. All have been achieved without change of color, taste or cooking characteristics. The practice is international and the health benefits are fortunately available to millions of people.

Literature Cited

1. Boussingault, M., *Memoirs sur les Salines iodiferes des Andes*, *Annales de Chemie et de Physique*, M.M. Gay-Lussac et Arago, Tome Cinquante-Quatrieme, a Paris, Chez Crochard, Librairie, (1833).
2. Marine, David, and Kimball, O. P.: *The Prevention of Simple Goiter*, *J. Lab. & Clin. Med.*, 3:40-46 Oct. (1917)
3. U.S. Dept. of Agriculture: *The National Food Situation*, NFS-54, pp. 34-35 Oct.-Dec., (1950)
4. Jeans, P.C., Smith, Mary B. and Stearns, Genevieve: *The Dietary Habits of Pregnant Women of Low Income in a Rural State*, *J. Amer. Diet. Assoc.*, 28:27-34, January (1952).
5. Ad Hoc Comm. on Fluoridation of Water Supplies, Maxcy, Kenneth F., M.D., Chairman: *Report of the Comm. Div. of Med. Sc., Nat. Res. Council*, Wash. D.C., Nov 29 (1951)

Announced: By J. K. Roberts, F.A.I.C. general manager of research and development of Standard Oil Company (Indiana), the promotion of J. C. Bailie to chief chemist at the company's Neodesha, Kansas, refinery, and the advancement of W. J. Tancig to assistant chief chemist at Standard's Whiting, Indiana, refinery.

Research Contract: Awarded by the Department of the Navy to Fine Organics, Inc., 211 E. 19th St., New York 3, N. Y. to conduct research and development on the synthesis of organic nitrogenous substances by biochemical means, according to a recent announcement by Nicholas M. Molnar, F.A.I.C., president.

Plant Expansion Planned: By Heyden Chemical Corporation, to triple the production of resorcinol, according to an announcement by John P. Remensnyder, F.A.I.C., president.

Speaker: Dr. Roger Adams Hon. AIC, of the University of Illinois, before the New York Section of the American Chemical Society, Organic Group, March 7th, on "Quinone Imides."

New Sales Office: Opened by the Synthetic Department of Hercules Powder Company in Carew Tower, Cincinnati, Ohio.

Plantation Rubber: Successfully grown on 2,500 acres in Costa Rica by the Goodyear Tire and Rubber Company. According to P. W. Litchfield, chairman of the board, "Fifteen years of cultivation . . . has demonstrated that natural rubber can be produced at sufficiently low cost to compete with the output from the Far East. Goodyear technicians, working with experts from the U.S. Department of Agriculture, have overcome the serious leaf blight which previously afflicted the native Para rubber tree when closely cultivated in plantation form in Central and South America."

Winners: Monsanto Chemical Company's plants at Nitro, West Virginia, and Trenton, Michigan, of the President's Trophies in the company's annual safety competition for 1951. Dr. Charles Allen Thomas, Hon.AIC, president, said that both plants operated during 1951 with no lost-time accidents. The Nitro plant, which employs more than 850 persons, has an accident-free record of more than three million man-hours.

Increased: Sales of industrial and laboratory instruments and apparatus by 44.5 per cent during the first half of 1951, according to the Scientific Apparatus Makers Association, 20 No. Wacker Drive, Chicago 6, Illinois.

Revised: The Institute for the Teaching of Chemistry by St. Louis University, based on the "concept that the 'ideal chemistry teacher' must understand the field of chemical science and keep up with the department; must know the basic relations of chemistry to the other sciences and to the whole of human knowledge; must understand the various conceptions of the goals of education and of the process of education; and finally must be a master of the techniques of the art of teaching." Dr. Theodore A. Ashford is director of the Institute.

Wine Chemistry: Studied by J. E. Ransford, S. J., F.A.I.C., at the College of Agriculture, University of California, at Davis, during 1951-52. He will assist with production at the Novitiate Winery, Los Gatos, California, beginning this June. He will continue as instructor in the Chemistry Department at the University of Santa Clara, California.

Deceased: C. Laurence Warwick, executive secretary of the American Society for Testing Materials, and its administrative head since 1919, shortly after presiding at a dinner honoring the retiring treasurer of the Society, April 23rd, in Philadelphia, Pa. During World War II, he served as head of the Specifications Branch of the Conservation Division, War Production Board, and later headed the Materials Division.



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National Council Meetings

Meetings of the AIC National Council will be held at The Chemists' Club, 52 E. 41st Street, New York, N.Y., at 6:00 p.m., on the following dates:

May 6, 1952
June 11, 1952

Honored: George Fisher, supervisor of J. T. Baker Chemical Company's acid manufacturing department, by the company in recognition of his 45th service anniversary. He joined Baker in 1906 at the age of thirteen, when Baker employed sixty persons, compared with more than eight-hundred today.

Report Of The President

1951-1952

President Lawrence H. Flett

THE AMERICAN INSTITUTE OF CHEMISTS has completed its 29th year. The year of 1952 finds the INSTITUTE in an excellent condition. The activity of our members has continued to improve the dignity and reputation of the INSTITUTE and the service which it renders.

The membership of the INSTITUTE has been relatively constant during the past two years. The membership now stands at 2507. During the year, 177 new members were added; 159 members were lost by death, resignation or by being dropped from the rolls. While the membership has not increased, it has been very much strengthened by the addition of names of men of considerable reputation and by the elimination of less interested members. The INSTITUTE should never be known by the number of members, but rather for its ability to gather together those people who are giving serious thought to the future of chemistry. There has been no change in the number of AIC Chapters, which now stands at twelve. The chapters are all active, and one of the most encouraging features to the INSTITUTE has been the strengthening of the chapter groups. These groups are able to focus attention on professional problems and

to bring together a fine group of members to discuss them.

The INSTITUTE has continued to recognize outstanding contributions to our profession by individuals. During the years, four honorary members were elected: Dr. John E. McKeen, Dr. Ernest Volwiler, Professor Arthur J. Hill, and Dr. Fred J. Emmerich. Dr. Emmerich is the Gold Medalist for the year.

The Chicago, New York and Ohio Chapters have continued to present their honor scrolls. The New Jersey, Washington, and Niagara Chapters are inaugurating scrolls this year, as did the Pennsylvania Chapter. The meeting at which the chapter honor scrolls are presented are a fertile source of professional thought which has enriched the pages of THE CHEMIST. THE CHEMIST has continued to improve as these and other contributions from thoughtful authors have become available. The readership of THE CHEMIST is excellent, and this has been reflected in an improved financial position so that THE CHEMIST continues to pay its own way.

Although the INSTITUTE has not raised dues, it is expected that we will finish the year with a profit. It is felt that the INSTITUTE can exer-

REPORT OF THE PRESIDENT

cise the greatest influence, if it continues to operate on a modest budget and so represents a group of men who expect no financial gain from their efforts to promote the role of the chemist.

The Annual Meeting again is a two-day meeting organized into discussion groups where subjects of paramount importance to the profession are to be discussed. The INSTITUTE is fortunate to have the co-operation of such a distinguished group of speakers.

The outstanding problems of the chemist are recognized by the program of the Annual Meeting; the chemist needs to improve public relations, to promote safety and to

improve his relations with management. There is a serious problem approaching with regard to the chemical literature. We continue to have with us the problem of a high inventory of completed research, which is certain to be aggravated by the present tax situation. There is currently a shortage of chemists for specific positions. It is felt, however, that the major problem is the misuse of the chemist, and that there would be an adequate number of chemists available if they were all used in a way which might fully use their capabilities. The President has enjoyed the full cooperation of the officers, the Council, and the members and is indebted to them for their help.

Report of the Secretary 1951-1952

Dr. Lloyd van Doren

THE National Council held five meetings during the year, with an average attendance of eleven officers and councilors. The following actions upon membership were taken:

<i>Elections</i>		
Honorary	0	
Life	0	
Fellows	73	
Members	23	
Associates	79	175
		<hr/>

<i>Reinstatements</i>		
Fellow	1	
Associate	1	2
	<hr/>	<hr/>
		177

<i>Loss of Membership</i>		
<i>Resignations</i>		
Fellows	29	
Members	11	
Associates	18	58
	<hr/>	<hr/>

	<i>Dropped</i>				
Fellows	42			W. S. Calcott, F.	
Members	12			E. S. Cavett, F.	
Associates	25	79		J. F. Couch, F.	
	—	—		T. N. Deutz, F.	
				J. B. Ekeley, F.	
	<i>Deceased</i>			A. C. Goetz, F.	
Honorary	2			Henry Howard, F.	
Fellows	19			J. H. Kelly, Jr., F.	
Members	1	22		Alan Porter Lee, F.	
	—	—		William J. Lenz, F.	
		159		Charles F. Longfellow, F.	
Total Increase of Membership		177		Boris N. Lougovoy, F.	
Total Loss of Membership...		159		William McPherson, Hon.	
		—		C. W. Rivise, F.	
Net Increase in Membership		18		Joseph J. Stivale, Jr. M.	
	<i>Actions</i>			John W. Thomas, Hon.	
Life to Honorary	0			Walter E. Thrun, F.	
Fellows to Honorary	4			Francis M. Turner, F.	
Fellows to Life	1			James G. Vail, F.	
Members to Fellows	10				
Associates to Fellows	16			This year we have welcomed 177	
Associates to Members	10			new members into the INSTITUTE.	
Total Membership as of May 1, 1952				The following Fellows of the IN-	
Fellows	1880			STITUTE were elected to Honorary	
Members	305			Membership: Dr. Arthur J. Hill,	
Associates	260			Dr. John E. McKeen, and Dr. E. H.	
Life Members	32			Volwiler. Honorary membership was	
Honorary Members	30			also conferred on Dr. Harry Nicholls	
				Holmes, F.A.I.C., the Medalist for	
				1951.	
Total Membership	2507			During the week of the Interna-	

It is with deep regret that we record the following deaths, about which we were notified during the year:

Harry P. Banks, F.
C. A. Benoit, F.
W. A. Bridgeman, F.

During the week of the International Congress of Chemistry, on September 11th, at the Commodore Hotel, New York, the Institute held a Friendship Dinner, under the chairmanship of C. S. Kimball, Dr. H. G. Thode, president of the Chemical Institute of Canada, and Prof. W. H. Linnell, senior vice

REPORT OF THE SECRETARY

president of the Royal Institute, brought greetings from their countries, and INSTITUTE members, many of whom were from other states than New York, enjoyed meeting each other.

Greetings, prepared by Miss Florence E. Wall, were sent to the Fifth South American Chemical Congress, held in May 1951, at Lima, Peru.

A message of greeting to the American Chemical Society on the occasion of its Diamond Jubilee was prepared by the INSTITUTE and presented by Dr. Raymond E. Kirk, to Dr. N. Howell Furman, president of the American Chemical Society.

The Association of the Bar of the City of New York requested that a representative be sent from the INSTITUTE to hearings on House Bills 4371 and 4373, House Resolution 4473, and the corresponding bill introduced in the Senate (the Reed-Keogh Bills), which permit retirement benefits for self-employed persons. Benjamin Sweedler was appointed and attended all meetings. At the April Council meeting, he was again appointed as chairman of a Steering Committee to continue representation of the INSTITUTE at future hearings.

Several get-together AIC breakfasts were held in connection with other society meetings in several cities, under the sponsorship of local AIC Chapters. The INSTITUTE has been represented by members of the INSTITUTE specifically delegated to

represent it at various inaugurations and dedications throughout the country.

The scientific manpower situation was made the subject of study for one Committee. Another committee was appointed to recommend procedures for establishing an emeritus membership. A third committee is undertaking the revision of procedures for awarding student medals.

While the New York Chapter continues its work on the establishment of an Employment Project, employment has been handled in the Secretary's office. This year, there was a reduction in the number of chemists seeking positions, and of those, some, though already employed, desired change in type of work or location. AIC members seeking positions may place, without charge, brief advertisements in *THE CHEMIST*. Likewise those seeking chemists may also insert brief statements of their needs.

We are pleased to report markedly increased activity in several of the Chapters, particularly the Ohio, Pennsylvania, Los Angeles, and Washington Chapters.

Several Chapters awarded Honor Scrolls for the first time. The Pennsylvania Chapter presented its first Honor Scroll to Dr. Emil Ott; the Washington Chapter presented its first Honor Scroll to Dr. Gordon M. Kline; the New Jersey Chapter will present its first Honor Scroll to Dr. Frederick A. Hessel on May 21st.

Many other interesting activities of the Chapters and Committees of the AIC will be found in the reports which will follow in early issues of THE CHEMIST.

Credit and appreciation are extended to the many members of the INSTITUTE who have given generously of their personal time and effort to advance the professional status of chemists.

Neomycin: Now being produced by Heyden Chemical Corporation's Antibiotic Division, Princeton, N.J. John P. Remensnyder, F.A.I.C., president, announced that Heyden has assembled an abstract bibliography of more than one-hundred and fifty articles published on Neomycin, covering the years 1949-1951. This booklet is available to readers of THE CHEMIST on request to Heyden Chemical Corporation, 393 Seventh Ave., New York, N.Y.

Director of Research: Dr. V. N. Morris, F.A.I.C., of Shellmar Products Corporation, Mount Vernon, Ohio. He was formerly with the Industrial Tape Corporation, New Brunswick, N.J.

Industrial Standardization: Seminar to be held June 23rd to 27th at the Engineering Societies Building New York, N.Y., by Dr. John Gailard. Request information from him at 400 West 118th St., New York 27, N. Y.)

For Your Library

The Fischer-Tropsch and Related Syntheses

Including a summary of theoretical and applied catalysis. By Henry H. Storch, Norman Golumbic, and Robert B. Anderson, of the Office of Synthetic Liquid Fuels, Bureau of Mines. John Wiley & Sons, Inc. 1951. 610 pp. 6" x 9". \$9.00

This is a book for chemists and chemical engineers engaged in the study of fuel economics. It was prepared as the result of an extensive and critical review of the large number of reports and documents pertaining to the selective catalytic hydrogenation of carbon monoxide, which were selected from many German plants and research laboratories by British and American technical men after World War II. The book presents the basic chemistry of the Fischer-Tropsch process; the results of catalyst testing and pilot-plant development work, and data on industrial operations. Since this and similar syntheses may play an important part in the conservation of our fuel resources, this summary is a valuable contribution to the literature.

Dr. Frederick A. Hessel, F.A.I.C.

Chemistry — Key to Better Living

Edited and produced by the staffs of Chemical & Engineering News and Industrial & Engineering Chemistry. American Chemical Society, Washington 6, D. C. xxi—244 pp. 1951. \$4.00.

This volume is primarily a history of chemistry in America during the past seventy-five years and of the interrelation of the American Chemical Society and the American chemical industry as they have developed and progressed during that period.

A series of papers on chemical progress reviews the development of chemical science and its industrial applications and discusses the part the ACS and its divisions played in the advancement of chemical knowledge and skill. This series was organized to subdivide chemistry roughly into the fields covered by the divisions of the ACS. These histories are all written by outstanding leaders in the fields covered.

FOR YOUR LIBRARY

A special feature is "The First 75 Years" by Anthony Standen. This story, copiously illustrated, and written in the inimitable style of the author of "Science Is a Sacred Cow," relates the significant developments of the first 75 years of the ACS and particularly the role the Society and its members played in the industrial chemical growth of the Nation. A picture-caption story graphically presents this same period. There are sections written by authorities who give a glimpse at our science and civilization.

In addition to excellent make-up, arrangement, and typography, the volume is arrestingly bound in cobalt blue cloth, lettered in genuine gold leaf with the ACS emblem displayed. This book is a "must" in the library of every chemist and chemical engineer, and as a reference in the libraries of industrial concerns, research laboratories, and educational institutions.

—James M. Crowe, F.A.I.C.

Organic Reactions

Vol. 6. Dr. Roger Adams, F.A.I.C. John Wiley & Sons, Inc. 517 pp. 6" x 9". \$8.00.

This volume, of a well-known series, hardly needs to be introduced to the organic chemist. In common with the preceding volumes, the present one is well presented and sufficiently exhaustive in the treatment of the reactions covered. These reactions include: The Stobbe Condensation, The Bischler-Napieralski reaction, The Pictet-Spengler synthesis, the Pomeranz-Fritsch reaction, the Oppenauer oxidation, the synthesis of Phosphonic and Phosphinic acids, Halogen-metal interconversions with Organolithium compounds, Thiazole preparation, Thiophene and Tetrahydrothiophene preparation, and Lithium Aluminum hydride reductions.

Although all the reactions treated are of great interest, the chapters on the Stobbe Condensation, Oppenauer oxidation and Lithium Aluminum Hydride Reductions are especially timely. Without a doubt this volume can be highly recommended to the organic chemist and should be a part of every well-rounded library. It, as well as every other volume of this

series should be on the bookshelf of every graduate student. A good knowledge of this series will give the advanced student as well as the professional chemist an unsurpassed knowledge and command of a large cross-section of organic chemistry, since a serious study of the reactions treated and experimental techniques involved will cover the gamut of the important organic transformations.

—John B. Rust, F.A.I.C.

Corrosion Guide

By Emil Rabold (Director and Chief Chemist, C. F. Boehringer & Sons, Mannheim, Ger.) Elsevier Press. v + 629 pp. \$12.50.

This book deals with the corrosion of materials for construction of chemical plants. The text is refreshingly brief, consisting of only 46 pages on the general aspects of corrosion, directed especially at a better understanding of the tables which follow. In the Tables, the action of over 250 corrosive agents on over 40 materials of construction are set out in tabular form. There are 10 pages of bibliography at the end of the book, in addition to 21 references in the text. The value of the book can be appreciated only by consulting it in connection with some particular problem. It is a "guide", and not a treatise, for the selection of materials to be used in the operation of chemical processes in the ordinary sense, that is, up to, but not including nuclear processes.

—Dr. E. E. Butterfield, F.A.I.C.

A Laboratory Manual of Qualitative Organic Analysis

By H. T. Openshaw. Second Edition Cambridge University Press. 92 pp. 5½" x 8". \$1.75.

A compact, handy little book, with lots of data and good descriptions, and above all, practical precautions for the laboratory. It is well worth having. It gives methods of testing for classes of compounds, stressing the chemical reactions, with references to the literature.

—Dr. John A. Steffens, F.A.I.C.

Chemical Books Abroad

Rudolph Seiden, F.A.I.C.

Georg Thieme Verlag, Stuttgart (Grüne & Stratton, New York): *Klinik und Therapie der Vergiftungen*, by Sven Moeschlin, 1952, 430 pp., 53 ill., DM 45. This book briefly describes the modern inorganic, organic, plant, animal, and food poisons, the symptoms manifested by them (including case reports and toxicity data), and recommends the proper antidotes. Among newer chemicals discussed are DDT, alkylphosphates and other modern insecticides, the latest war poisons, Te, U, Ra-active substances, dicumarol, various barbiturates, glycols, organic F compounds, etc.

Akademie-Verlag, Berlin NW7: *Fortschritte der Alkaloidchemie seit 1933*, by Hans-G. Boit, 1950, 427 pp., paper bound, DM 49. An exhaustive report about research made into the constitutional formulas and the synthesis of alkaloids during the years 1932-1949. It is a continuation of the other standard books of Winterstein-Trier and of the treatise on alkaloids by R. Seka (in Abderhalden's famous Handbuch). A very complete index concludes this monograph which is the second volume of the publisher's new book series called "Scientia Chimica."

Urban & Schwarzenberg, Munich 22: *Medizinische Chemie*, by K. Hinsberg and K. Lang, 2nd ed., 619 pp., 22 ill., DM 44. Here is an unusually useful book for biochemical and physiological-chemical laboratories. It is a critical evaluation of the modern macro- and micro-analytical methods—including colorimetric and colloid-osmotic processes. The following subjects are discussed: cations, anions, water, organic acids, alcohols, aldehydes and ketones, carbohydrates, lipoids, fats and bile acids, biogenic amines, nucleotides, nucleosides and purines, amino acids, protein, and the various pyrrole dyes. The publication of an English translation of this notable standard work should be a rewarding enterprise.

Verlag Chemie, Weinheim/Bergstrasse: *Handbuch der Metallbeizeerei*, by Otto Vogel, 2nd ed., 2 volumes: *I, Nichteisenermetall* (410 pp., 263 ill., DM 49.20) and

II, Eisenwerkstoffe (538 pp., 390 ill., DM 63). This standard work should be available wherever expert advice is needed on metallic mordants, a subject on which very few dependable books exist. *Vol. I* deals with history, equipment, mixing and disposal of solutions, health hazards, preparation of metals, and the treatment of Cu, Ni, Al, Mg, Sn, Pb, Zn, Au, Ag, and their alloys. *Vol. II*, similarly arranged, gives basic facts and countless practical suggestions for the mordanting of the various types of iron and steel, e.g., wires, plates, sheets, pipes, enamelware, etc. The combined indexes include over 9100 listings of scientific and of practical interest. • *Enzymatische Analyse*, by Hermann Stetter, 210 pp., 8 ill., DM 17.50. This is probably the first compilation of all known analytical methods which use ferments. They are often superior to pure chemical assays. The volume describes the use of esterases, carbohydrases, amidases, proteases, dehydrases, oxidases, oxidation ferments, etc., their use as indicators, and the preparation of analytical ferments employed in the investigation of biochemical and clinical materials, pharmaceuticals, foods, and feedstuffs.

Information

"A to Zero of Refrigeration." 94-page booklet. Dept. of Public Relations, General Motors, Detroit 2, Mich.

"The Perfect Pointer." New visual aid. Information. The Perfect Pointer, 760 Tuckahoe Rd., Tuckahoe, N.Y.

"Probetector. Portable Detector for Explosive Gases." Information. Atlas Exploration Co., 1911 West Alabama, Houston, Texas.

"New Forced Draft Laboratory Oven." Information. Schaar & Co., 754 W. Lexington St., Chicago 7, Ill.

"Non - Electric Permanent Magnetic Separators for Tramp Iron Removal." Catalog 15. Eriez Manufacturing Co., Erie, Pa.

"About Sugar Its Place in Defense." Leaflet." Sugar Information, Inc., 52 Wall St., N.Y. 5, N.Y.

INFORMATION

"Profit Evolution No. 3." Bulletin. Roger Williams, Inc., 148 E. 38th St., New York 16, N.Y.

"Price List of American Standards." American Standards Association, 70 E. 45th St., N.Y. 17, N.Y.

"L'Annuaire Industriel." Directory of French Industry. For information, write, Foreign Sales Manager, Services Commerciaux et Techniques, 27 Rue du Mont-Thabor, Paris (1), France.

"Witco M. R. (Hard Hydrocarbon) in Natural & Chemical Rubbers." Technical bulletin. Request on letterhead from the Witco Chemical Co., 295 Madison Ave., N.Y. 17, N.Y.

"The Essentiality of Corn Products to the Armed Forces." Booklet. Corn Industries Research Foundation, 5 E. 45th St., New York, N.Y.

"The Annals of Science. For 1951." \$5.60. Taylor & Francis, Ltd., Red Lion Court, Fleet St., London, E.C. 4, England.

"Thermo-Regulators and Thermostats." Catalog 18. H-B Instrument Co., 2633 Trenton Ave., Philadelphia 25, Pa.

"A Water Policy for the American People." 3 volumes. Vol. 1, \$3.25. Vol. 2, \$6.00. Vol. 3, \$2.25. For sale by Supt. of Doc., U.S. Gov. Printing Office, Washington 25, D.C.

"A Review of Textile Coloring and Finishing." By Dr. George L. Royer, F.A.I.C. Calco Technical Bulletin No. 818. Advertising Dept., American Cyanamid Co., Calco Chemical Div., Bound Brook, N.J.

"New Process for Bonding Rubber to Metal." Article in *Rubber Developments*. Available without charge from Natural Rubber Bureau, Dept. 1, 1631 K St., N.W. Washington, D.C.

"Bibliography of Recent Research in the Field of High Polymers. (Through 1949)" 20 cents. Supt. of Doc., U.S. Gov. Printing Off, Washington 25, D.C.

"Study of German Synthetic Waxes." OTS Report PB-34727. Translated by S.S. Cosman & Reviewed by P. F. Dewey, F.A.I.C. \$10.00. P. F. Dewey, 1118 Watts Ave., University City, Mo.

"Aerotex Cream 450." Textile Finishing Bulletin No. 126. American Cyanamid Co., Textile Resin Dept., Bound Brook, New Jersey.

"New Developments." Catalog supplement leaflet. Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Pa.

"Nu-Film. Starch suspending agent." Information and samples. National Starch Products, Inc., Development Labs., 270 Madison Ave., N.Y. 16, N.Y.

"Tentative Standard Test for the Determination of Nickel." 25 cents. Porcelain Enamel Institute, 1010 Vermont Ave., N.W., Washington 5, D.C.

"A Test for Mercerization in the Presence of Dyes." By Sidney M. Edelstein, F.A.I.C. For copy write Dexter Chemical Corp., Box 1, Blvd. Sta., N.Y. 59, N. Y.

"Silver-Clad Steel Strip to Substitute for Brass and Restricted Metals." Rolled Plate Div., American Silver Co., Inc., Flushing, N.Y.

"Neolac 600. High Gloss Resin Enamel." Bulletin 239. G. F. Fine, The U.S. Stoneware Co., Akron 9, Ohio.

"Neutroda." Fuel Oil Deodorant. Information. The Tankit Co., 17 Shepard Ave., Newark, N.J.

"New Reinhold Books." Catalog. Reinhold Publishing Corp., 330 W. 42nd St., New York 18, N.Y.

"A Few Notes on the Early History of Thermometry." Leaflet. Palo-Myers, Inc., 81 Reade St., New York 7, N.Y.

"PL-1 Portable Electric Oven with Shelves." Information, Grieve-Hendry Co., Inc., 1101 N. Paulina St., Chicago 22, Ill.

AIC Activities

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Will You Come?

May 1st. Pennsylvania Chapter. Presentation of Student Medals to outstanding college seniors in area. Speaker to be announced.

May 2nd. Chicago Chapter meeting. (write W. L. Kubie, Sec.-Treas, AIC Chicago Chapter, c/o Darling & Co., 4201 S. Ashland Ave., Chicago 9, Ill. for details.)

May 7-8th. Annual Meeting of THE AMERICAN INSTITUTE OF CHEMISTS. Hotel Commodore, New York.

May 21st. New Jersey Chapter. Presentation of first Honor Award to Dr. Frederick A. Hessel. Student Medal Awards. Speakers: Dr. Lloyd Van Doren, Secretary AIC, on "Dr. Hessel's Scientific and Professional Contributions;" Dr. W. D. Woodward, Psychiatric Consultant, American Cyanamid Company, on "Personality Factors in Success and Failure." Presentation of Award, Dr. Lincoln T. Work. Winfield Scott Hotel, Elizabeth, New Jersey. 7:00 p.m.

May 21st. Niagara Chapter Honor Award to Dr. Emil R. Riegel, University of Buffalo.

May 22nd. New York Chapter, Annual Meeting. Award of Fourth Honor Scroll to Dr. Foster Dee Snell. Speaker: Dr. Gustav Egloff on "Foster D., As I Know Him." Presentation by Karl M. Herstein. Dinner, Hotel Commodore, N.Y.

June 6th. Chicago Chapter meeting. (See May 2nd item above.)

AIC Members who are in Washington, D.C., can find out about Washington Chapter meetings by telephoning the Chapter secretary, Paul E. Reichardt, at Republic 3275, Extension 221.

AIC Members who plan to visit New Orleans, La., are invited to get in touch with National Council Representative, Harold A. Levey, 311 Audubon Blvd., New Orleans, La.

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U.S. Civil Service: Examinations for Chemist, Metallurgist, Physicist, \$4,600 to \$10,000. Grades GS-9 to GS-15. Mathematician \$3,825 to 10,000. Grades GS-7 to GS-15. Announcement No. 226 (Unassembled). Request information from The U.S. Civil Service Commission, Washington 25, D.C.

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Organic Chemist: M.A. 1952. Top scholastic record. AIC Student Medal. Married, 28, veteran. Administrative ability. Desires permanent position in organic synthetic or analytical or physical organic work with advancement opportunities. Prefers Philadelphia area, or areas nearby. Available June 15th. Box 54, THE CHEMIST.

Graduate Classes: Of the Chemistry Department of Brooklyn College, Brooklyn 10, N. Y., formerly scheduled only in the evening, will this Fall also be scheduled in the daytime. The courses lead to the M. A. degree with specialization in physical, organic, biochemistry and analytical chemistry. Interested students are invited to write or visit the Graduate Office for further information.

High Polymers: Special course to be given June 16th to July 5th at Massachusetts Institute of Technology. For information, write Prof. Ernest H. Huntress, director Summer Session, Room 3-107, M.I.T., Cambridge 39, Mass.

Graduate Scholarship: Established by Armour and Company at Illinois Institute of Technology for the academic year 1952-53. The scholarship will be awarded to a qualified graduate in food engineering or to a graduate in chemical engineering or chemistry with certain course deficiencies to be made up.

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Scholarship Fund: Presented by the Great Northern Paper Company to the Pulp and Paper Foundation of the University of Maine. John B. Calkin, F.A.I.C., director of the University's Department of Industrial Cooperation, stated that the \$5,000 subscription would be added to the Foundation's scholarship fund for "worthy students majoring in pulp and paper technology."

New Plant: For the production of chlorine and caustic soda, being erected by the Solvay Process Division of Allied Chemical & Dye Corporation, at Moundsville, West Virginia. The cost of the plant will approximate \$15 million and will provide employment for about 125 people.

Ceramic Raw Materials: The Southwest Research Institute, San Antonio, Texas, reports discovery of sufficient sources of raw materials to permit development of a sizable mineral processing industry in South Texas.

Irish Moss: Now being purchased at a new processing plant by the Phoenix Pabst-ett Company, subsidiary of the Kraft Foods Company, in South Portland, Maine. The moss is made into stabilizing agents and emulsifiers used in the food and pharmaceutical industries.

Large-Scale Production: Started by the Norwich Pharmacal Company of nitrofurazone, derived from furfural. The new \$140,000 plant will produce about 240,000 pounds a year, as compared to previous pilot plant production of a few pounds a year since 1944. The drug has important uses in human and animal medicine.

Food Technology: Special course to be given by Massachusetts Institute of Technology, June 16th to July 3rd. For information, write Prof. Bernard E. Proctor, Department of Food Technology, M.I.T., Cambridge 39, Mass.

The belief that the older worker is more of an accident risk than the younger is not justified by fact. Of 26,000 employees in four plants, the accident rate was higher for younger workers in terms of frequency . . . The rates for men between the ages of forty and fifty-four were only about two-thirds as high as for those under twenty-one, and about the same as for those between twenty-one and twenty-nine.

—Dr. Lorand V. Johnson
Western Reserve University

Transferred: F. M. Rosenblum, A.A.I.C., from the New York plant to the Chicago plant of Stein, Hall & Co., Inc., 3742 S. Loomis Place, Chicago 9, Ill., where he is production chemist.

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
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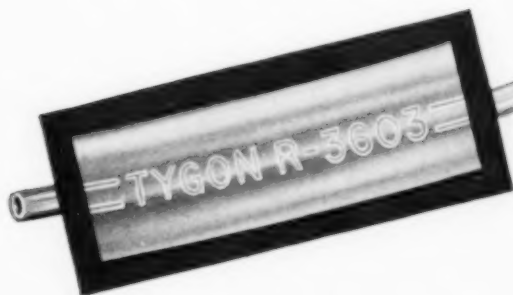
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